Attachment 1

Sensitive Foreign Nations Controls

SENSITIVE SUBJECTS

This is a list of areas of technical subject matter or technologies containing "sensitive" information. The list identifies subjects related to the development and production of weapons of mass destruction (nuclear, chemical, and biological) and their delivery systems (including missiles), conventional weapons, and other technologies deemed significant to the national security of the United States.

Department of Energy (DOE) hosts of foreign visitor, DOE travelers, and others holding information on these subjects should be aware of all constraints on releasing information. They should also be cautious about providing gratuitous information and careful to guard against premature release of information about rapid advances or breakthroughs in technology. In addition, they should be cautious about providing information regarding supporting technologies, such as information embedded in another technology (e.g., advanced control systems incorporated into military equipment). Any potential transfer of information that was once classified as Restricted Data (RD), including Unclassified Controlled Nuclear Information (UCNI), should be carefully reviewed and the appropriate authority obtained prior to transfer.

Guidance on the scope, depth, and timing for the release of information should be obtained from appropriate authorities. All sensitive visitors/assignments must submit Unclassified Foreign Visit and Assignment Forms which are then entered into the Foreign Access Central Tracking System (FACTS). Visits must be entered in FACTS at least 30 days prior to the visit which allows HQ/CI the time to process an indices check. In many cases, prior issuance of an export license by a U.S. government agency, such as the Department of State or the Department of Commerce, is required before information can be transferred to a foreign national, even within the United States.

Part 1: Topics Related to Nuclear Weapons and Nuclear Fuel Cycle

The following subject areas and related technologies may contain "sensitive" information. Such information may pertain to the research, design, development, testing, manufacture, production, or use of items below and their associated components, parts, accessories, and software. The lists provided are ***illustrative*** only and should ***not*** be considered exhaustive. Additional information regarding these subject areas can be found in the Department of Commerce Export Administration Regulations (15 CFR Parts 730-774), the Nuclear Regulatory commission Regulations (10 CFR Part 110), the Department of energy Regulations (10 CFR Part 810), and the Department of State International Traffic in Arms Regulations (22 CFR Parts 120-130).

Nuclear Weapon Development and Testing

1. Nuclear weapons and weapon technologies, *for example*:
   a) computer codes and methodologies useful in the design of nuclear weapons (e.g., coupled hydrodynamic/radiation-transport codes)
   b) high explosives relevant to nuclear weapons
   c) advanced detonator design or explosive-train initiation systems
   d) neutron generator technology for alpha-n and accelerator type generators (e.g., generator target fabrication and seals technology)
   e) weapon component fabrication (e.g., computer-aided design and manufacture, high accuracy machine tools, furnaces, and isostatic presses)
   f) generally any state-of-the-art, weapon-related technology or weapon-specific details
   g) surveillance and sensor technologies that could be critical and unique to surveil nuclear weapon stewardship or development,
   h) information relating to Stockpile Life Extension Program (SLEP) and SLEP planning that would enhance another nation's understanding of U.S. weapons and/or the status of the U.S. stockpile

2. Nuclear weapons materials properties if not already adequately protected by classification guidance, *for example:*
   a) material databases of critical and unique use to nuclear weapon stewardship or development
   b) nuclear cross sections of primary use in weapons

c) plutonium databases and simulation technologies applicable primarily to weapons
d) opacity and equation of state models and information critical and unique to weapon design

3. Advanced high-performance computing platform.

4. Nuclear and hydrodynamic testing technologies, *for example:*
   a) high-speed oscilloscopes and pulse generators
   b) cameras (e.g., mechanical rotating mirror, electronic streak and framing)
   c) flash x-ray technology
   d) other specialized instrumentation and diagnostics for fast transient event

5. Nuclear weapon test detection and archives, and nuclear weapon effects information, *for example:*
   a) unclassified data, models, or information that support the identification or detection of a clandestine nuclear explosion whose release would reveal the capabilities or limitations to do so
   b) experimental methods, tests, or calculations of nuclear weapons effects that could be used to understand vulnerabilities to U.S. defense systems or weapons
   c) information about nuclear weapons effects that substantially increase the military effectiveness of U.S. weapons

6. High-energy-density physics research relating to nuclear weapons, *for example:*
   a) inertial confinement fusion and supporting technologies
   b) pulsed-power and supporting technologies

Nuclear Fuel Cycle Activities

7. Isotope enrichment processes and equipment for uranium, plutonium, and other fissile materials, *for example:*
   a) gaseous diffusion
   b) gas centrifuge
   c) aerodynamic
   d) chemical exchange
   e) ion exchange
   f) electromagnetic
   g) laser isotope separation
   h) plasma isotope separation

8. Nuclear reactor systems, *for example:*
   a) naval, mobile/portable military, space, research, production, or power reactors
   b) critical assemblies

9. Chemical conversion, handling, and storage of uranium, plutonium, or other fissile and source materials, and associated compounds, *for example:*
   a) uranium oxide, tetra fluoride, hexafluoride, tetrachloride, or metal
   b) plutonium oxide, tetra fluoride, hexafluoride, or metal
   c) equipment therefore

10. Metallurgy of fissile and source materials including but not limited to natural or depleted uranium, thorium, americium, ^{233}U, ^{235}U, ^{239}Pu, or ^{237}Np.

11. Fuel-element and target fabrication, *for example:*
   a) powder handling techniques
   b) ceramic fabrication.

12. Reprocessing and partitioning technologies, *for example:*
   a) electro refining
   b) PUREX

Nuclear-Related Material Production and Safeguards

13. Tritium production technology, *for example:*
    a) tritium-gas handling procedures and techniques
    b) high pressure or solid-state tritium storage technology
    c) recovery processes and chemistry
    d) target fabrication, design, and design methods

14. Accelerator-driven systems for the production of tritium or special nuclear materials.

15. Lithium isotope enrichment technology.

16. Heavy water or deuterium (and compounds thereof) isotope enrichment technology.

17. Production and processing of other materials with specific nuclear applications, such as byproduct materials, zirconium, hafnium, graphite, beryllium, and enriched boron-10 as pure materials, composites, compounds, or alloys.

18. Safeguards and physical security information and techniques, including modeling systems and procedures, that are unique to or primarily developed for the protection of nuclear weapons and their related design and production facilities, and nuclear reactors, and other nuclear fuel cycle facilities, *for example:*
    a) design characteristics of barriers
    b) information on tamper resistant and tamper-indicating devices
    c) physical security measures used by DOE facilities.

Part 2: Topics Related to Rockets, Missiles, and Delivery Systems

The following subject areas and related technologies may contain “sensitive” information. Such information may pertain to the research, design, development, testing, manufacture, production, or use of items below and their associated components, parts, accessories, and software. The lists provided are ***illustrative*** only and should ***not*** be considered exhaustive. Additional information regarding these subject areas can be found in the Department of Commerce Export Administration Regulations (15 CFR Parts 730-774) and the Department of State International Traffic in Arms Regulations (22 CFR Parts 120-130).

1. Missiles and rocket systems and subsystems, *for example:*
    a) engines, propulsion components, and equipment
    b) propellants and their constituent chemicals (including certain polymers and finely powdered metals)
    c) structural materials, including fiber matrices, mar aging steel, ceramic composites, and tungsten and molybdenum alloys
    d) pyrolytic deposition/densification equipment
    e) reentry vehicles (e.g., heat shields, heat sinks, and electronics)
    f) integrated flight instrument systems, including direction finding equipment and system, gyrostabilizers, and accelerometers
    g) specially designed software for modeling, simulation, or design integration of the systems
    h) controlled equipment, including flow forming machines, ,filament winding machines, mixers, milling machines, and other equipment used to produce rocket and missile parts or materials
    i) weapon or warhead safing, arming, fusing, and firing mechanisms

2. Navigation and avionics equipment, *for example:*
    a) radar and laser radar systems
    b) global Positioning system (GPS) or similar satellite receivers
    c) mapping and imaging equipment
    d) interferometer equipment

3. Flight control systems and technology.

4. Launch vehicles, launch support equipment, facilities, and software.

5. Ruggedized or radiation-hardened analog computers, digital computers, digital differential analyzers, and analog-to-digital converters.

6. Test facilities and test equipment, *for example:*
   a) vibration test systems
   b) wind-tunnels, and environmental and anechoic chambers
   c) electromagnetic pulse testing equipment

7. Stealth technology, including structural materials and coatings specially designed for reduced radar reflectivity, software, and specially designed radar cross section measurement systems.

8. Protection systems for radiation and thermal shock.

Part 3: Topics Related to Conventional Arms and Other Defense-Related Technologies

The following subject areas and related technologies may contain "sensitive" information. Such information may pertain to the research, design, development, testing, manufacture, production, or use of items below and their associate components, parts, accessories, and software. The lists provided are ***illustrative*** only and should ***not*** be considered exhaustive. Additional information regarding these subject areas can be found in the Department of Commerce Export Administration Regulations (15 CFR Parts 730-774) and the Department of State International Traffic in Arms Regulations (22 CFR Parts 120-130).

1. Firearms, artillery projectors, and ammunition, *for example:*
   a) arms up to .50-caliber, guns over .50caliber
   b) mortars, howitzers, flame-throwers
   c) cartridge cases, bullets, shells

2. Other conventional munitions, for example:
   a) torpedoes
   b) bombs
   c) mines
   d) non-nuclear warheads

3. Explosives, propellants, incendiary agents, military pyrotechnics, fuel-air explosives, and their constituents.

4. Naval warfare vessels, military vehicles, and aircraft, *for example:*
   a) submarines, or amphibious vessels
   b) tanks or armored vehicles
   c) military aircraft and helicopters
   d) submersible vessels, oceanographic vessels and equipment
   e) catapults, and turret and gun mounts

5. Military training equipment, *for example:*
   a) flight simulators
   b) radar training equipment

6. Protective personnel equipment, *for example:*
   a) body armor
   b) pressure suits

7. Military electronics, *for example:*
   a) equipment used for countermeasures
   b) radar systems
   c) underwater sonar
   d) command, control, and communications equipment
   e) military computer hardware, software, and system vulnerabilities

8. Computer chip manufacturing (e.g., lithography).

9. Fire control, range finder, optical guidance, and control equipment, *for example:*
   a) gun and missile tracking and guidance systems
   b) night sighting equipment
   c) inertial platforms and sensors for weapons

10. Auxiliary military equipment, *for example:*
    a) directed energy weapons
    b) self-contained diving and underwater swimming apparatus
    c) liquid oxygen converters
    d) concealment and deception equipment
    e) cameras and equipment for imagery analysis

11. Information security, *for example:*
    a) cryptographic systems
    b) encryption/decryption hardware and software

12. Satellites and spacecraft systems, *for example:*
    a) remote sensing satellite systems
    b) global positioning systems
    c) radiation hardened microelectronics
    d) ground control and support equipment
    e) military communication satellites

13. Mine-sweeping equipment and components.

14. Technologies pertaining to laser defense weapons, *for example:*
    a) information on codes or algorithms that could be applied to pointing and tracking accuracy
    b) information on new technologies that would greatly reduce cost or technical difficulty in manufacturing laser weapons

15. Remote sensing technologies including instrument and detector technologies that may greatly enhance national technical means.

16. Large space-based optics that may be used for remote space-based reconnaissance, target designation, or beam weapon direction.

17. Any article not related to subject areas 1-16 that has substantial military applicability.

Part 4: Topics Related to Chemical and Biological Weapons

The following subject areas and related technologies may contain “sensitive” information. Such information may pertain to the research, design, development, testing, manufacture, production, or use of items below and their associate components, parts, accessories, and software. The lists provided are ***illustrative*** only and should ***not*** be considered exhaustive. Additional information regarding these subject areas can be found in the Department of Commerce Export Administration Regulations (15 CFR Parts 730-774) and the Department of State International Traffic in Arms Regulations (22 CFR Parts 120-130).

1. Chemical or biological agents and their precursors, *for example:*
   a) chemicals enumerated in EAR and ITAR such as, binary chemical agents; blister (vesicant), choking, blood, and nerve agents; and incapacitating agents including psychochemical, tear gas agents and vomiting agents
   b) all viruses, bacteria, rickettsiae, toxins, fungi and genetically modified microorganisms as enumerated in the control lists of the EAR and ITAR

2. Genetic research, techniques, and specialized equipment related to chemical or biological agents, *for example:*
   a) genome sequences and databases
   b) genetic engineering techniques

3. Manufacturing facilities, equipment and processes for the production of chemical agents, *for example:*
   a) reaction vessels, reactors, or agitators
   b) storage tanks, containers, or receivers
   c) heat exchangers or condensers
   d) distillation or absorption columns
   e) remotely operated filling equipment
   f) valves
   g) multi-walled piping
   h) pumps
   i) incinerators

4. Manufacturing facilities, equipment, and processes for the production of biological agents, *for example:*
   a) complete containment facilities at P3, P4 containment levels
   b) fermenters
   c) centrifugal separators
   d) cross-flow filtration equipment
   e) freeze-drying equipment
   f) equipment that incorporates or is contained in P3 or P4 (BL3, BL4, L3, L4) containment housing
   g) aerosol challenge testing chambers

5. Processes, components, and integration of individual components for the weaponization of chemical or biological agents.

6. Delivery and agent dispersal systems for chemical and biological agents, *for example:*
   a) artillery projectiles
   b) bombs
   c) rockets
   d) missiles
   e) spray tanks
   f) land mines
   g) grenades
   h) sub munitions
   i) information relative to vulnerabilities or effectiveness

7. Defense against, and vulnerabilities to, the use of chemical or biological agents, *for example:*
   a) vaccines, antitoxins
   b) equipment including protective clothing

8. Scenarios and models of threats that reveal vulnerabilities and defensive weaknesses.

9. Detection or identification of chemical or biological agents, *for example:*
   a) specific signatures that could be used to detect or identify biological or chemical agents or weapons and the facilities used to produce them

b) details of sensors or sensor systems, including data and analyses, that would substantially reveal their performance characteristics
c) details of laboratory analysis techniques that would substantially reveal their ability to identify chemical or biological agents

Part 5: Topics Related to Other Sensitive Unclassified Technical Information

The following subject areas and related technologies may contain sensitive information, as their dissemination may be controlled primarily due to economic espionage concerns. The list provided is ***illustrative*** only and should ***not*** be considered exhaustive. Each DOE site should develop a specific list of technologies in use at the site which meet these criteria, and submit the list to the Office of Counterintelligence. Additional information regarding these subject areas can be found in the Privacy Act of 1974, U.S.C. 552a; the Freedom of Information Act of 1966, 5 U,.S.C. 552; the National Competitiveness Technology Transfer Act of 1989, 15 U.S.C. 3701; and the Economic Espionage Act of 1966. The U.S. Attorney General defines economic espionage as "the unlawful or clandestine targeting or acquisition of sensitive financial, trade, or economic policy information, proprietary economic information, or critical technologies."

1. Business protected technical information, *for example:*
   a) Technical Cooperative Research and Development Agreement (CRADA) information, such as advanced lithography technologies, etc. A CRADA is defined as "a contract between federal and non-federal parties that may result in the exchange of information that: embodies trade secrets developed at private expense outside a CRADA; contains commercial or financial information that is privileged or confidential under the Freedom of Information Act, 5 U.S.C. 552(b) 4; and is marked as "proprietary Information".
   b) Information developed under work-for-others agreements which should be protected,
   c) Proprietary information (other than covered in item a), defined as "technical data which embodies trade secrets developed at private expense"
   d) Trade secret information (other than that covered in items a and c), defined as "all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically or in writing if – 1) the owner thereof has taken reasonable measures to keep such information secret and 2) the information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by the public.
   e) information dealing with scientific and manufacturing processes or developments concerning technical or scientific data or other information submitted with a contract proposal or as part of a report while the contract is in progress
   f) contract-bidding and related financial information
   g) patent-sensitive information.

Sensitive Countries List

Countries appear on this list for reasons of national security, nonproliferation, anti-terrorism, or economic security. Due to the dynamic nature of world events, other countries may, at any time, become sensitive. Therefore, caution should be exercised in dealing with citizens of all countries, including countries not listed to assure that sensitive information, although unclassified in nature, is not inadvertently disclosed. This should include information related to weapons of mass destruction and other proprietary information that could cause economic harm to the U.S. should it be improperly disclosed.

Sensitive countries are updated at the following email address. You may access this email address at any time to determine if a country is listed as sensitive or not:
http://www.ch.doe.gov/insidech/org_offices/oci/SensitiveCountries/index.htm

Algeria
Armenia
Azerbaijan
Belarus
China
Cuba*
Georgia
India
Iran*
Iraq*
Israel
Kazakhstan
Kyrgyzstan
Libya*
Moldova
North Korea
Pakistan
Russia
Sudan*
Syria*
Taiwan
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

* Embargoed Countries

DOE Sensitive countries List

The following countries are considered sensitive by the Department of Energy due to concerns about their activities which affect U.S. national security interests, including but not limited to nuclear proliferation, regional instability, and/or support for terrorism. Note, too, that this list is subject to change in response to the dynamic nature of world events. Caution should be exercised, therefore, in dealing with citizens of countries not listed to assure that sensitive and proprietary information, although unclassified in nature, is not inadvertently disclosed. If you have questions or concerns about interactions with an individual or individuals from any foreign country – whether or not the country is on this list – please notify the SAFE office at once.

You may access this email address at any time to determine if a country is listed as sensitive or not: http://www.llnl.gov/expon/sensitive.html

Algeria
Armenia
Azerbaijan
Belarus
China, People's Republic of *and* Hong Kong
Cuba
Georgia
India
Iran
Iraq
Israel
Kazakhstan
Korea, North (Democratic People's Republic)
Kyrgyzstan
Libya
Moldova
Pakistan
Russia
Sudan
Syria
Taiwan
Tajikistan
Turkmenistan
Ukraine
Uzbekistan